ABB 1TGE120021R0810

01 Function and selected configuration

Product function

ABB 1TGE120021R0810 separates the M10x field network from the supervisory Modbus connection. It acts as a master toward the motor controllers and as a slave or TCP server toward the DCS, allowing the two communication roles to be configured independently.

Selected configuration

The gateway supports MNS Digital and MNS Digital Upgrade installations using M101/M102 motor controllers. The selected hardware provides serial and Ethernet interfaces; the application runs from an industrial-grade CompactFlash card. The CF card contains configuration and mandatory application files and is required for startup and operation.

Functional path

M10x controllers → Four RS-485 RTU ports → MNS Digital Gateway → Modbus DCS / PLC

Field network	Four RS-485 Modbus RTU ports
Host connection	Modbus RTU or Modbus TCP
Supply	24 VDC nominal; 19–31 VDC operating range

LAN 1 is assigned to Modbus TCP, LAN 2 to the Switchgear Control Network, and Serial 2 to the Modbus RTU host interface. Serial 1 serves redundancy. LAN 3 and the USB ports are unused in this application. On the M10x side, the four serial ports operate as Modbus RTU masters; RS-485 segment wiring, addresses and termination must be engineered together.

1TGE120021R0810

02 Technical operating envelope

M10x communication	Modbus RTU over RS-485
Field serial ports	4
Host protocols	Modbus RTU / Modbus TCP
Host communication role	Slave / TCP server
Nominal supply	24 VDC
Supply range	19–31 VDC
Typical current	800 mA

Maximum current	1000 mA
Operating temperature	0 to +55 °C
Protection	IP51
Application storage	Industrial-grade CompactFlash
Modbus TCP port	502
LAN 1 assignment	Modbus TCP
LAN 2 assignment	Switchgear Control Network

Electrical values describe this gateway hardware. Address capacity, bus termination and communication speed must respect the installed M10x network and its segment design.

Signal interpretation

The gateway is a master on the M10x RTU network but a slave/TCP server toward the control system. Host commands and field-device addresses belong to different configuration layers.

Interface boundary

Remove power before inserting or removing the mechanically keyed industrial CF card. Its application files are required for the gateway to start and run.

1TGE120021R0810

03 System integration and applications

M10x field aggregation

Four RS-485 segments collect motor-controller status and measurements through Modbus RTU.

Modbus TCP supervision

LAN 1 provides the configured server interface for host queries on the Ethernet control network.

Serial host integration

Serial 2 supports the selected Modbus RTU connection to a supervisory master.

Configured redundant gateway

The Serial 1 redundancy interface supports the engineered gateway arrangement, subject to matching application and network settings.

System and supply context

The gateway links an M10x switchgear installation to the configured DCS or PLC Modbus host. CF application files, field devices, network cables and mounting hardware must be identified separately.

Application boundary

Use the published M10x register and command mapping for measurements, status and control. Interface hardware alone does not establish another protocol or motor-control application.

Which Ethernet port on 1TGE120021R0810 carries Modbus TCP?

LAN 1 is the Modbus TCP interface. LAN 2 serves the Switchgear Control Network; LAN 3 is unused in the described M10x configuration.

1TGE120021R0810

04 Engineering selection decisions

Why does 1TGE120021R0810 use different master/slave roles on its two sides?

It polls M10x devices as the Modbus RTU master, while the DCS or PLC polls the gateway as a slave or TCP server. Host communication settings and field-segment settings therefore serve different roles.

Can 1TGE120021R0810 start its application without the CompactFlash card?

No. The industrial-grade CF card contains the mandatory application and configuration files required to start and run the gateway.

Where is the external RS-485 terminator needed for 1TGE120021R0810?

The gateway serial port has an internal terminating resistor at its end of the segment. The far end requires the specified 120 Ω termination; preserve the engineered segment wiring and shielding.

Why can 1TGE120021R0810 respond over Ethernet while the motor values remain incorrect?

A working network connection confirms transport only. Verify Modbus register addresses, byte representation, device mapping and control-access configuration before accepting measurements or commands.

Match serial settings	Match M10x address, baud rate, parity and stop-bit settings within each field segment.
Verify command mapping	Test read values and controlled commands against the correct register map and access state.

1TGE120021R0810

05 Configuration boundary and references

Lifecycle and support

The current manufacturing and factory-support phase of 1TGE120021R0810 is not confirmed. Product availability alone does not establish its lifecycle status.

Replacement assessment

Retain the exact gateway, industrial CF application, field-segment map and host protocol settings. Confirm redundancy and control-access behavior before replacing a configured unit.

Document roles

Use the original manufacturer excerpt for its preserved technical tables and drawings. This product brief explains selection and system context. The separate installation guide covers preparation, connection, tests and handover; it does not replace manufacturer instructions.

Technical basis

ABB MNS Digital with M10x, Interface Manual Modbus, 1TGC908004M0201, Release 1.1, May 2018.

Related product navigation

- ABB HENF209568R0001 P3LB
- ABB 1TGE102009R2300

These are related references, not confirmed substitutes or an automatically approved assembly.

Product enquiries